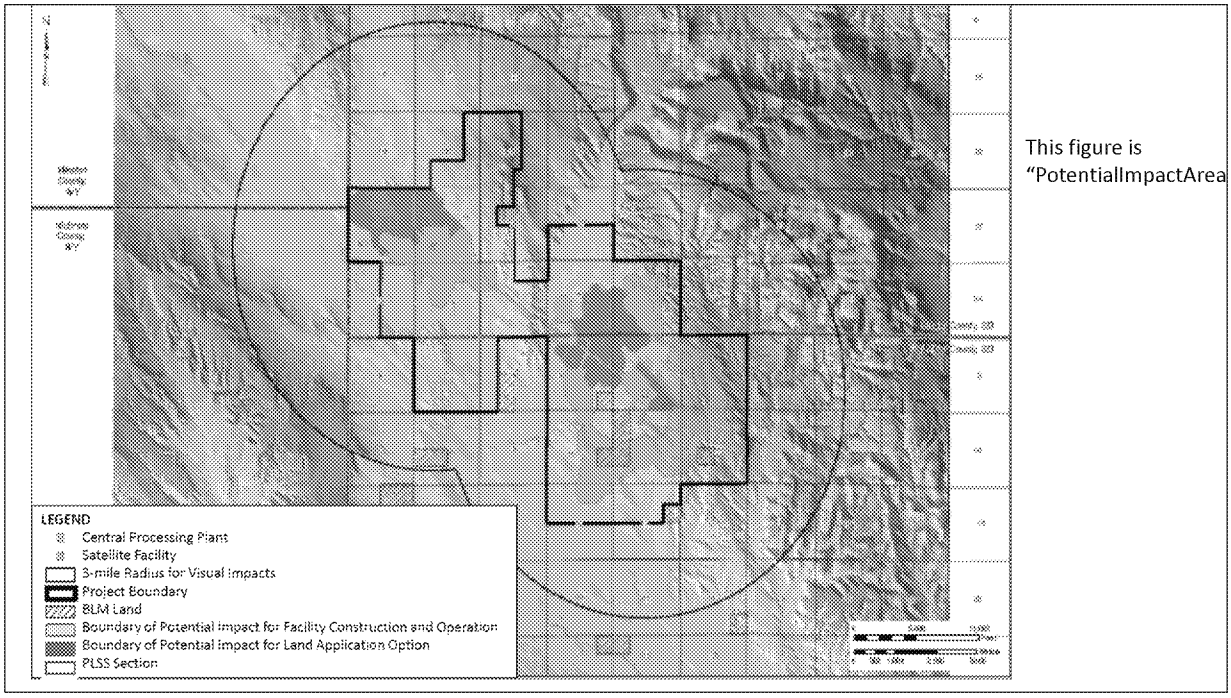


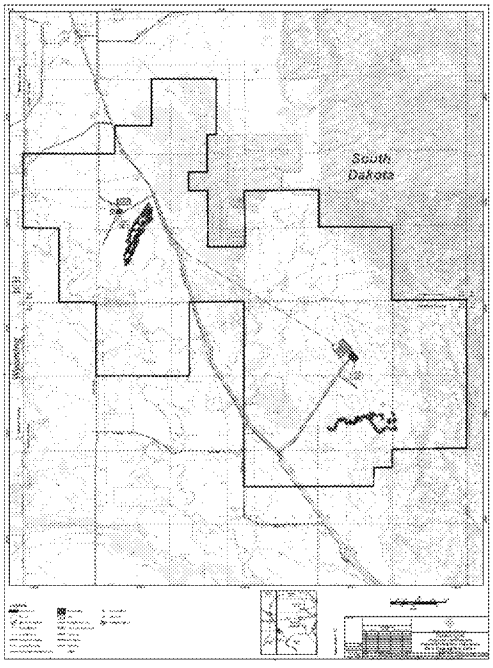
This figure is
“PotentialImpactArea

NRC Final Supplemental Environmental Impact Statement (FSEIS or SEIS)) for Dewey-Burdock
Table 4.2-1
Powertech proposes two waste fluid disposal options: 1) the Class V disposal wells 2) land application of treated water under a permit from the SD DENR. The second option will be used only if the Class V wells are not approved or do not have the capacity to disposal of the full volume of waste fluids.

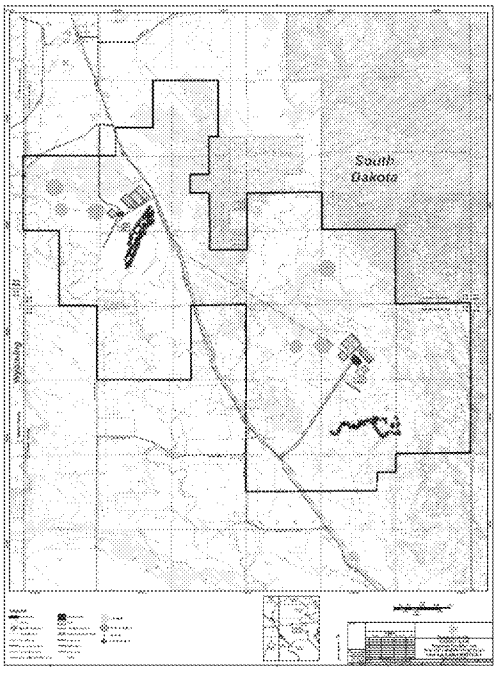
Table 4.2-1. Breakdown of Land Disturbance for the Class V Injection Well and Land Application Disposal Options at the Proposed Dewey-Burdock *In-Situ* Recovery Project

Facilities/Infrastructure	Surface Disturbance
Disposal Via Class V Injection Wells	
Site Buildings	9.7 ha [24 ac]
Trunkline Installation	10.1 ha [25 ac]
Access Roads	8.5 ha [21 ac]
Wellfields	56.7 ha [140 ac]
Impoundments (ponds)	13.4 ha [33 ac]
Total	98.3 ha [243 ac]
Disposal Via Land Application	
Site Buildings	9.7 ha [24 ac]
Trunkline Installation	10.1 ha [25 ac]
Access Roads	8.5 ha [21 ac]
Wellfields	56.7 ha [140 ac]
Impoundments (ponds)	55.0 ha [136 ac]
Irrigation Areas	425.7 ha [1,052 ac]
Total	565.7 ha [1,398 ac]
Source: Powertech (2010a)	

See Exhibit 3.1-3 for this map



See Exhibit 3.1-2.pdf for this map



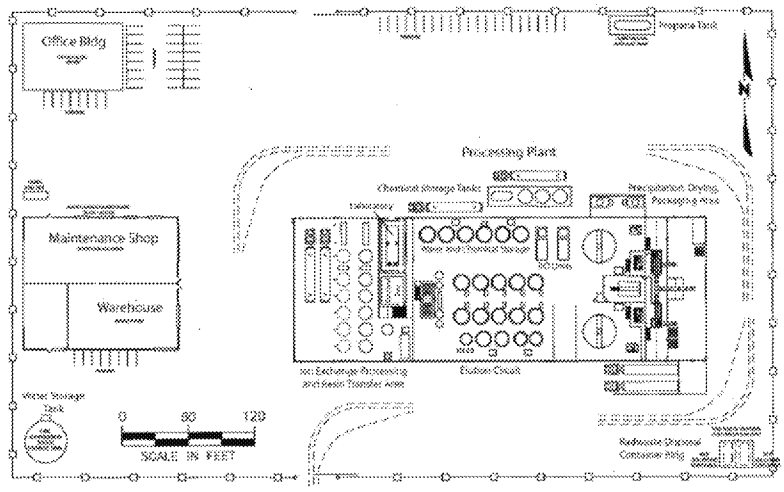


Figure 2.1-4. General Site Plan for the Budock Central Processing Plant
Source: Modified From Powertech (2009b)

The general layout of the Burdock central plant is shown in Figure 2.1-4 and includes the placement of an office building, maintenance shop and warehouse, and central processing plant. These facilities will be located on approximately 2.7 ha [6.7 ac] within Section 2, Township 7 South, Range 1 East and will be surrounded by a controlled access area fence. The central processing plant will be within an approximately 32-m × 114-m [105-ft × 375-ft] building.

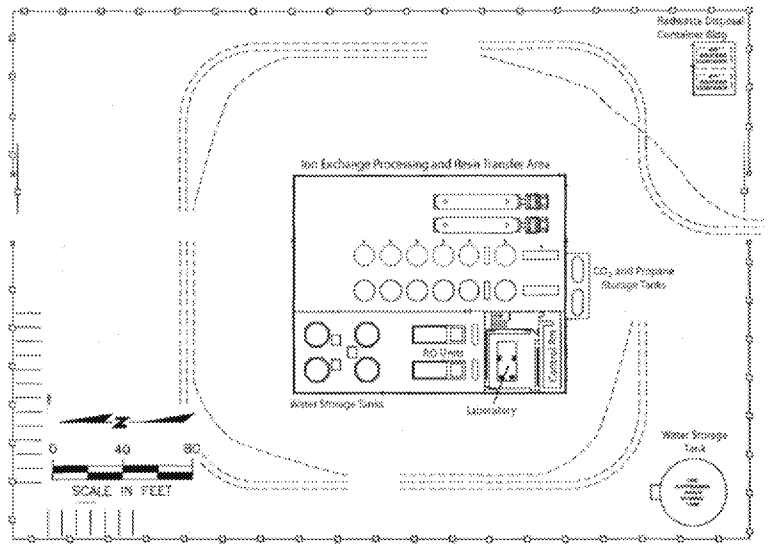
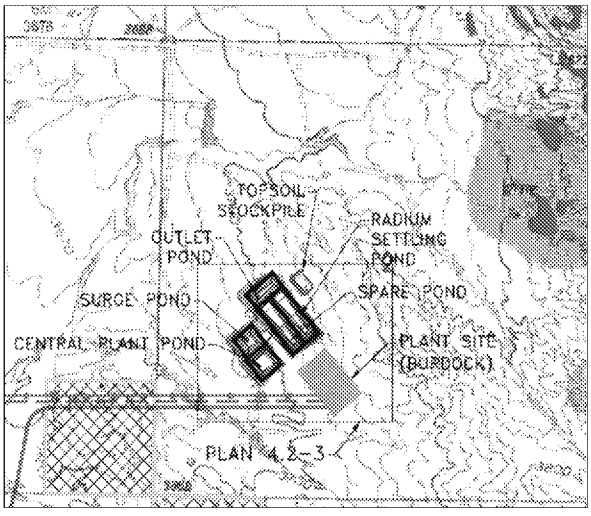


Figure 2.1-5. General Site Plan for the Dewey Satellite Facility
Source: Modified From Powertech (2009b)

The general layout of the Dewey satellite facility is shown in Figure 2.1-5, which shows the placement of the IX processing facility. This facility will be located on an estimated 1.2-ha [2.9-ac] area within Section 29, Township 6 South, Range 1 East and will be surrounded by a controlled access area fence. 38-m × 43-m [125-ft × 140-ft building.



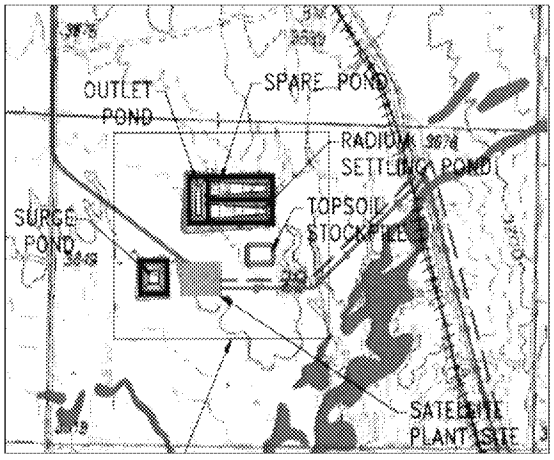
Burdock Area Pond Design for Class V injection well disposal option located in Section 2, T7N, R1E

Class V injection well pond design for the Burdock Area will include the following:

1) A 0.93-ha [2.3-ac] radium settling ponds that will contain production bleed and restoration water and allow radium to settle out of solution.
2) A 0.4-ha [1.0-ac] outlet pond that will intercept treated water from the radium settling ponds and store stormwater falling on the radium settling ponds.
3) A 0.45-ha [1.1-ac] surge pond that will contain treated water that is pumped to the disposal wells.
4) A 0.61-ha [1.5-ac] central plant pond in the Burdock area only that will contain brine produced at the Burdock central plant.
5) A 0.93-ha [2.3-ac] spare pond that will be used for emergency containment should a pond liner fail.

Ponds for the Class V injection well disposal will occupy a total of 3.36 ha [8.3 ac] in the Burdock area

CEA Figure 7a. Location of Burdock Area Ponds for the Deep Injection Well Disposal Method
From Large Scale Mine Permit Application Appendix 5.3-A Pond Design Report Figure 4.6-1



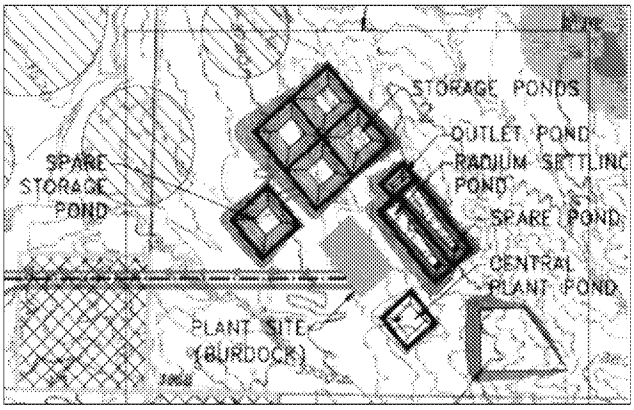
Dewey Area Pond Design for Class V injection well disposal option located in Section 29, T6N, R1E

Deep injection well pond design for the Dewey Area will include the following:

1) A 0.93-ha [2.3-ac] radium settling pond that will contain production bleed and restoration water and allow radium to settle out of solution.
2) A 0.4-ha [1.0-ac] outlet pond that will intercept treated water from the radium settling pond and store stormwater falling on the radium settling pond.
3) A 0.45-ha [1.1-ac] surge pond that will contain treated water that is pumped to the disposal wells.
4) A 0.93-ha [2.3-ac] spare pond that will be used for emergency containment should a pond liner fail.

Ponds for the Class V injection well disposal will occupy a total of 2.75 ha [6.8 ac] in the Dewey area

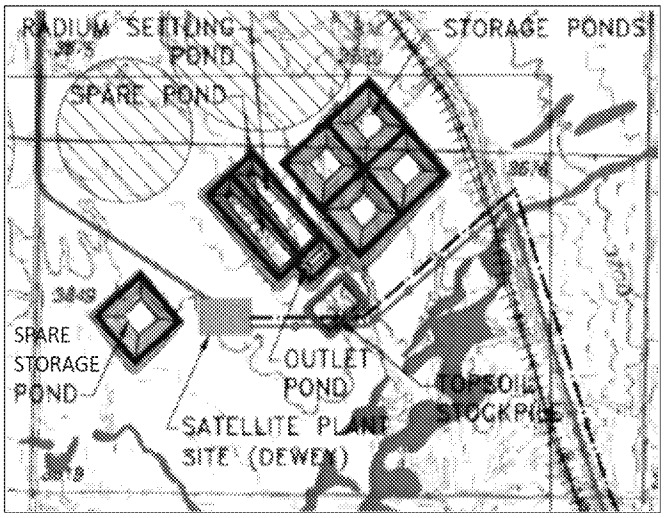
CEA Figure 6a. Location of Dewey Area Ponds for the Deep Injection Well Disposal Method from Large Scale Mine Permit Application Appendix 5.3-A Pond Design Report Figure 4.6-1



Burdock Area Pond Design for the land application disposal option located in Section 2, T7N, R1E

- A 1.62-ha [4.0-ac] radium settling pond to contain production bleed and restoration water while it is being treated via radium reacting with barium chloride and settling out of solution.
- A 0.32-ha [0.8-ac] outlet pond to intercept treated water from the radium settling ponds and store stormwater falling on the radium settling ponds.
- A system of four 1.78-ha [4.4-ac] ponds in the Burdock area to store treated water during the nonirrigation season
- A 1.78-ha [4.4-ac] spare storage pond to be used for emergency containment should any of the storage ponds fail or portions of the land application system become temporarily inoperable.
- A 1.09-ha [2.7-ac] central plant pond in the Burdock area to contain brine produced at the Burdock central plant.
- A 1.62-ha [4.0-ac] spare pond to be used for emergency containment should a liner on the radium settling ponds fail.

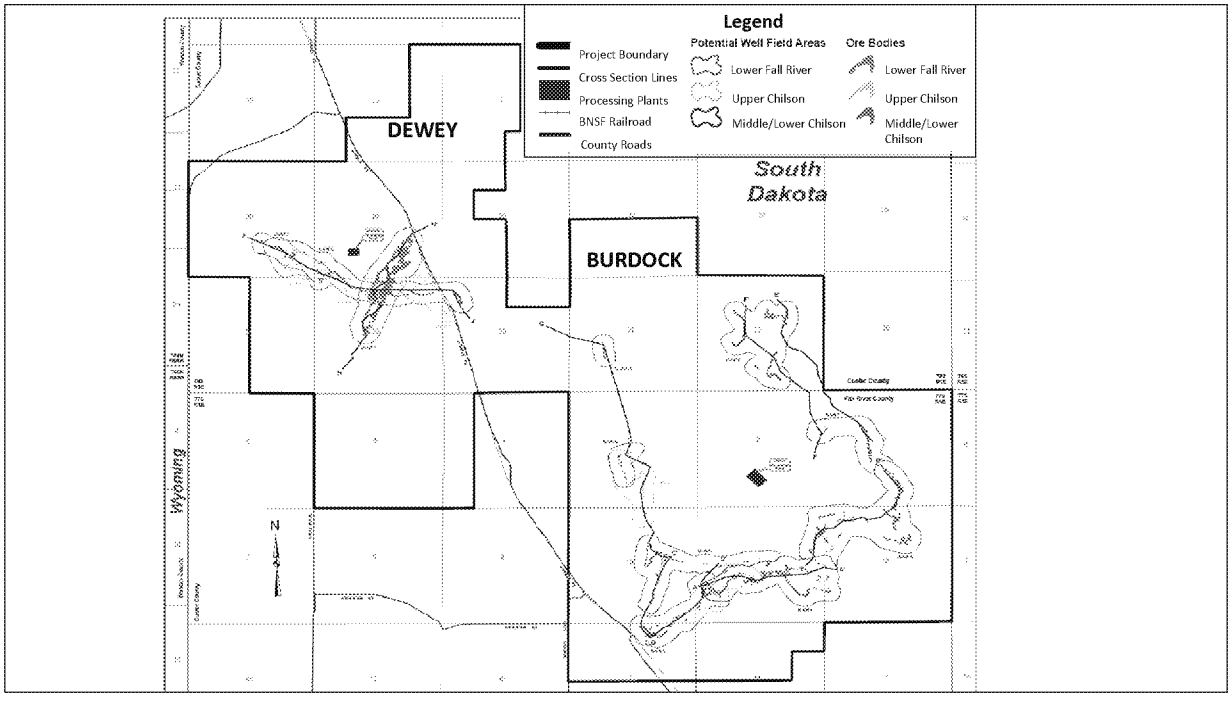
Figure 7b. Location of Burdock Area Ponds for the Land Application Disposal Method
From Large Scale Mine Permit Application Appendix 5.3-A Pond Design Report Figure 3.7-1



Dewey Area Pond Design the land application disposal option located in Section 29, T6N, R1E

- A 1.62-ha [4.0-ac] radium settling pond to contain production bleed and restoration water while it is being treated via radium reacting with barium chloride and settling out of solution.
- A 0.32-ha [0.8-ac] outlet pond to intercept treated water from the radium settling ponds and store stormwater falling on the radium settling ponds.
- A system of four 1.78-ha [4.4-ac] ponds constructed in the Dewey area
- A 1.78-ha [4.4-ac] spare storage pond to be used for emergency containment should any of the storage ponds fail or portions of the land application system become temporarily inoperable.
- A 1.62-ha [4.0-ac] spare pondto be used for emergency containment should a liner on the radium settling ponds fail.

CEA Figure 6b. Location of Dewey Area Ponds for the Land Application Disposal Method
From Large Scale Mine Permit Application Appendix 5.3-A Pond Design Report Figure 3.7-1


Legend
Project Boundary
Cross Section Lines
Processing Plants
BNSF Railroad
County Roads
Potential Well Field Areas
Lower Fall River
Upper Chilson
Middle/Lower Chilson
Ore Bodies
Lower Fall River
Upper Chilson
Middle/Lower Chilson
DEWEY
BURDOCK
South Dakota
Wyoming
N

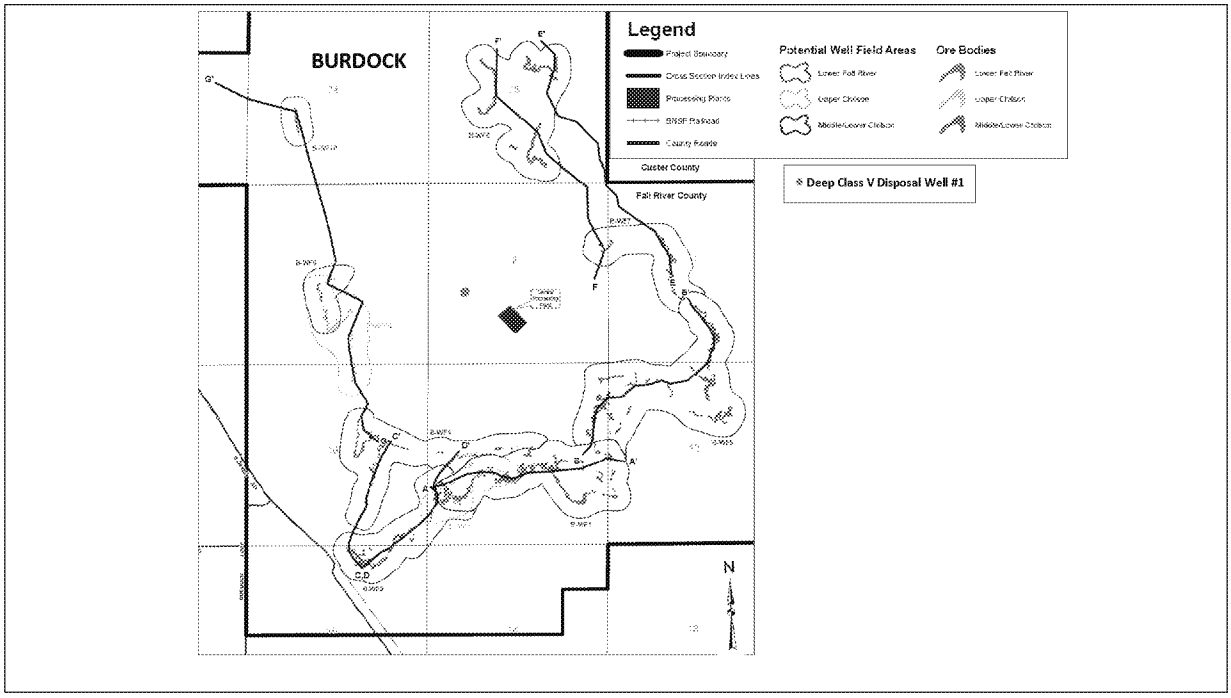
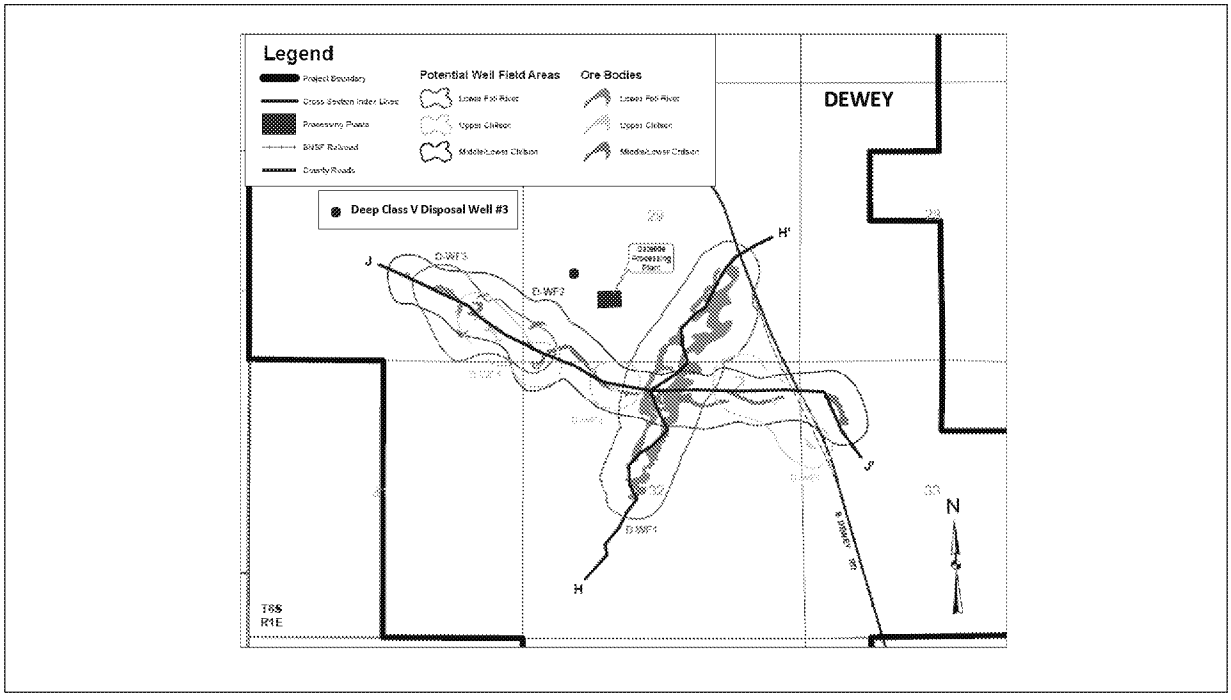


Figure 4a of Class III Fact Sheet



Dewey Wellfields
From NRC June 2011 RAI Response Exhibit 3.1-4 (DB_TR_RAI_Vol2d_Exh_3.1-2_thru_5.7-1.pdf)

Pipelines

NRC SEIS Section 2.1.1.1.2.3.6 Pipelines
The applicant proposes to install up to eight underground pipelines between the Burdock central processing plant and the Dewey satellite facility to transport various fluids used during ISR operations (Powertech, 2011). Conduits for electronic communication and control purposes will also be installed between the central plant and satellite facility. The plant-to-plant pipelines will transport fluids including but not limited to (i) barren and pregnant lixiviant, (ii) restoration water, (iii) reverse osmosis reject brines, (iv) wastewater from well drilling and maintenance operations, and (v) supply water from the Madison Formation or other aquifers.

Power Lines

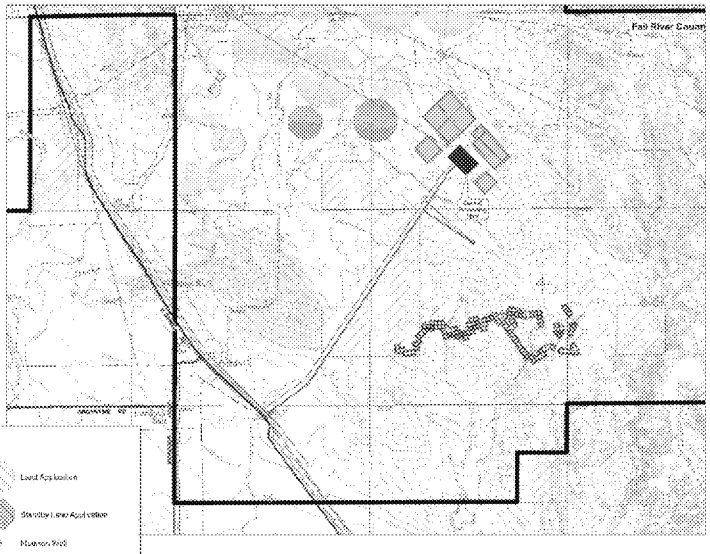
NRC SEIS Section 2.1.1.1.2.3.7 Power Lines
The applicant plans to use existing power line corridors wherever possible when constructing new power lines. However, a new power line corridor will be constructed alongside Dewey Road between the Dewey and Burdock areas to connect the Dewey satellite facility and the Burdock central processing plant. This proposed corridor will be approximately 9 m [30 feet] in width; the poles will be approximately 0.3 m [1.0 ft] in diameter and will be placed every 30–91 m [100–300 ft]. No access roads will be built during construction of the power lines and minimal disturbance to the ground surface is anticipated.

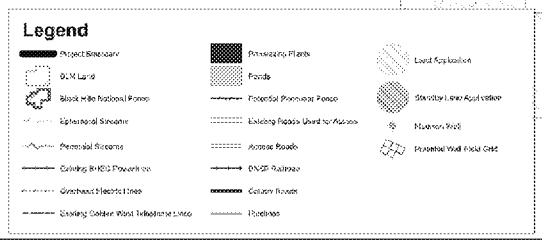
NRC Section 2.1.1.1.2.2 Access Roads

The proposed Dewey-Burdock ISR Project will utilize existing roads to the greatest degree possible. However, the construction of additional access roads will be required. A main access road to the proposed central processing plant in the Burdock area will be constructed off Dewey Road in Township 7 South, Range 1 East, Section 10, near the abandoned community of Burdock (see figures in Sections 2.1.1.1.2.4.1 and 2.1.1.1.2.4.2). This access road will join with several preexisting roads that traverse the Burdock area. A main access road to the proposed satellite facility in the Dewey area will be constructed farther to the north, off Dewey Road in Township 6 South, Range 1 East, Section 20 (see figures in Sections 2.1.1.1.2.4.1 and 2.1.1.1.2.4.2). This access road will connect with several preexisting roads that traverse the Dewey area. The preexisting roads within the Burdock and Dewey areas will be used to the fullest extent possible to provide access to the proposed facility structures and wellfields and to limit the construction of new roads. Secondary roads will be constructed to provide access to other proposed facilities (such as header houses) and wellfields not currently accessible by existing roads. The applicant will secure approvals from private landowners and BLM, as well as required county permits, prior to constructing any access roads within the proposed project area (Powertech, 2009a). Construction of access roads within the proposed project area will be kept to a minimum.

NRC SEIS Section 1.2.1
The disturbance to BLM includes an access road, overhead power lines, operational wellfields, groundwater monitoring wells, and underground pipeline installations.

This is an excerpt from Exhibit 3.1.-2 showing the BLM land areas at the site. See Exhibit 3.1-3 for the Class V well disposal option version.





From Exhibit 3.1-2; see Exhibit 3.1-3 for deep disposal well version.